

## Claims:

1. A patient support apparatus comprising:

a patient support deck having an upwardly-facing patient support surface, and  
a first sideframe adjacent to a first side of the patient support apparatus, and

movable between (i) a first raised position where the top of the first sideframe is generally  
disposed above the patient support surface at a first adult patient-restraining height, (ii) a  
second fully-raised position where the top of the first sideframe is generally disposed above  
the patient support surface at a second pediatric patient-restraining height greater than the  
first adult patient-restraining height, and (iii) a third out-of-the-way down position where the  
top of the first sideframe is generally disposed below the patient support surface.

2. The patient support apparatus of claim 1, further comprising:

a first sideframe locking mechanism for selectively locking the first sideframe  
in the first raised position, and

a second sideframe locking mechanism for selectively locking the first  
sideframe in the second fully-raised position.

3. A patient support apparatus comprising:

a patient support deck having an upwardly-facing patient support surface,  
first and second sideframes adjacent to first and second sides of the patient

support apparatus, and movable between (i) a first raised position where the tops of the first  
and second sideframes are generally disposed above the patient support surface at a first adult  
patient-restraining height, (ii) a second fully-raised position where the tops of the first and  
second sideframes are generally disposed above the patient support surface at a second  
pediatric patient-restraining height greater than the first adult patient-restraining height, and  
(iii) a third out-of-the-way down position where the tops of the first and second sideframes  
are generally disposed below the patient support surface,

a first sideframe locking mechanism for selectively locking the first and  
second sideframes in the first raised position, and

a second sideframe locking mechanism for selectively locking the first and  
second sideframes in the second fully-raised position.

4. The patient support apparatus of claim 3, further including:

a headboard adjacent to a head end of the patient support apparatus, and movable between (i) a first raised position where the top of the headboard is generally disposed above the patient support surface at a first adult patient-restraining height, (ii) a second intermediate position where the top of an extension panel movably coupled to the headboard is generally disposed above the patient support surface at a second pediatric patient-restraining height greater than the first adult patient-restraining height, and (iii) a third out-of-the-way down position where the top of the headboard is generally disposed below the patient support surface.

5           5.       The patient support apparatus of claim 4, further comprising:  
10           a first headboard locking mechanism for selectively locking the headboard in the first raised position and the second intermediate position, and

          a second headboard locking mechanism for selectively locking the extension panel in a generally vertically extended position where the top of the extension panel is generally disposed above the patient support surface at the second pediatric patient-restraining height.

15           6.       The patient support apparatus of claim 5, further including:  
          a footboard adjacent to a foot end of the patient support apparatus, and movable between (i) a first raised position where the top of the footboard is generally disposed above the patient support surface at a first adult patient-restraining height, (ii) a second intermediate position where the top of an extension panel movably coupled to the footboard is generally disposed above the patient support surface at a second pediatric patient-restraining height greater than the first adult patient-restraining height, and (iii) a third out-of-the-way down position where the top of the footboard is generally disposed below the patient support surface.

20           7.       The patient support apparatus of claim 6, further comprising:  
          a first footboard locking mechanism for selectively locking the footboard in the first raised position and the second intermediate position, and

25           a second footboard locking mechanism for selectively locking the extension panel in a generally vertically extended position where the top of the extension panel is

generally disposed above the patient support surface at the second pediatric patient-restraining height.

8. A patient support apparatus comprising:

a base,

5 an intermediate frame coupled to the base,

a patient support deck coupled to the intermediate frame, and having an upwardly-facing patient support surface,

a first sideframe movably coupled to the intermediate frame adjacent to a first side thereof for movement between (i) a first raised position where the top of the first sideframe is generally disposed above the patient support surface at a first adult patient-restraining height, (ii) a second fully-raised position where the top of the first sideframe is generally disposed above the patient support surface at a second pediatric patient-restraining height greater than the first adult patient-restraining height, and (iii) a third out-of-the-way down position where the top of the first sideframe is generally disposed below the patient support surface,

15 a first sideframe locking mechanism coupled to the intermediate frame for selectively locking the first sideframe in the first raised position, and

a second sideframe locking mechanism coupled to the first sideframe for selectively locking the first sideframe in the second fully-raised position.

20 9. The apparatus of claim 8, comprising first and second sideframes coupled to the intermediate frame adjacent to first and second sides thereof respectively for movement between (i) a first raised position where the tops of the first and second sideframes are generally disposed above the patient support surface at a first adult patient-restraining height, (ii) a second fully-raised position where the tops of the first and second sideframes are generally disposed above the patient support surface at a second pediatric patient-restraining height greater than the first adult patient-restraining height, and (iii) a third out-of-the-way down position where the tops of the first and second sideframes are generally disposed below the patient support surface, the apparatus further comprising first and second sideframe locking mechanisms for selectively locking the first and second sideframes in the first raised position and the second fully-raised position respectively.

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10. The apparatus of claim 8, wherein the first adult patient-restraining height is about eleven inches (about 28 centimeters), and wherein the second pediatric patient-restraining height is about twenty inches (about 50 centimeters).

5 11. The apparatus of claim 8, wherein the first sideframe locking mechanism includes a strike plate attached to one of the first sideframe and the intermediate frame, and a spring-loaded camming striker attached to the other of the first sideframe and the intermediate frame, wherein the strike plate attached to one of the first sideframe and the intermediate frame passes by the spring-loaded camming striker attached to the other of the first sideframe and the intermediate frame to cause the spring-loaded camming striker to  
10 momentarily retract away from the strike plate, and then extend back toward the strike plate to lock the first sideframe in the first raised position.

12 The apparatus of claim 11 wherein the first sideframe locking mechanism includes a strike plate attached to the first sideframe and a spring-loaded camming striker attached to the intermediate frame, wherein the strike plate attached to the  
15 first sideframe passes by the spring-loaded camming striker attached to the intermediate frame when the first sideframe is raised to cause the spring-loaded camming striker to momentarily retract away from the first sideframe, and then extend back toward the first sideframe to lock the first sideframe in the first raised position.

13. The apparatus of claim 12, wherein the first sideframe locking  
20 mechanism comprises a first sideframe release handle movably coupled to the intermediate frame and a cable coupling the first sideframe release handle to the spring-loaded camming striker, and wherein the camming striker is retracted to release the first sideframe in response to the movement of the first sideframe release handle.

14. The apparatus of claim 13, further comprising a first damping member  
25 coupling the first sideframe to the intermediate frame.

15. The apparatus of claim 8 further including a mechanism for pivotally mounting the first sideframe to the intermediate frame, the pivotally mounting mechanism including two sets of first and second spaced-apart links each having inner and outer ends, one set of the spaced-apart links being located adjacent to a head end of the patient support  
30 deck, the other set of the spaced-apart links being located adjacent to a foot end of the patient

support deck, the inner and outer ends of the links being pivotally coupled to the intermediate frame and the first sideframe respectively.

16. The apparatus of claim 8, wherein the first sideframe comprises spaced-apart top and bottom rails and a plurality of telescopic posts coupling the top and bottom rails.

17. The apparatus of claim 16, wherein each telescopic post comprises an upright member secured to one of the top and bottom rails slidably received in an upright inner sleeve secured to the other of the top and bottom rails.

18. The apparatus of claim 17, wherein the upright member is secured to the top rail and the upright inner sleeve is secured to the bottom rail.

19. The apparatus of claim 18, wherein the upright member is an upright rod having a top end coupled to the top rail and a bottom end coupled to a roller configured for reception in the upright inner sleeve.

20. The apparatus of claim 19, further comprising a plurality of soft upright outer sleeves depending downwardly from the top rail and extending around the upright members to form annular spaces therebetween, the upright inner sleeves secured to the bottom rail being configured to slide over the upright rod/roller assemblies secured to the top rail, the downwardly-depending upright outer sleeves being configured to slide over the upright inner sleeves.

21. The apparatus of claim 20, wherein the top and bottom rails and the upright inner sleeves are all padded, and wherein the padding comprises an inner layer of spongy material and an outer soft layer of tough material to prevent tearing.

22. The apparatus of claim 16, wherein the spacing between the telescopic posts is sufficiently close to prevent an infant from falling through.

23. The apparatus of claim 22, wherein the spacing between the telescopic posts is about two and three eighth inches (about 6 centimeters).

24. The apparatus of claim 16, wherein the second sideframe locking mechanism comprises:

a first bracket coupled to one of the top and bottom rails, the first bracket having at least one retaining slot,

a second bracket coupled to the other of the top and bottom rails, and  
a latching bar movably coupled to the second bracket for movement between a  
first position in the retaining slot to lock the top rail to the bottom rail and a second position  
out of the retaining slot to release the top rail.

5           25.     The apparatus of claim 24, further comprising a safety release paddle  
movably coupled to the second bracket for movement between a first position blocking the  
latching bar from moving put of the retaining slot, and a second position freeing the latching  
bar to move out of the retaining slot.

10           26.     The apparatus of claim 25, wherein both the latching bar and the safety  
release paddle are pivotally coupled to the second bracket about a generally horizontal axis  
disposed parallel to the longitudinal axis of the patient support deck for movement between  
their respective first and second positions, wherein the second sideframe locking mechanism  
further includes a spring urging the latching bar and the safety release paddle into the  
retaining slot.

15           27.     The apparatus of claim 26, wherein the first bracket is a lower bracket  
coupled to the bottom rail and the second bracket is an upper bracket coupled to the top rail.

20           28.     The apparatus of claim 27, wherein the lower bracket includes first and  
second longitudinally spaced-apart, vertically-disposed members coupled to the bottom rail,  
wherein the first and second spaced-apart members include a first pair of oppositely-disposed  
retaining slots, wherein the opposite ends of the latching bar and the safety release paddle are  
disposed in the first pair of oppositely-disposed retaining slots to support the first sideframe  
in the first adult patient-restraining raised position.

25           29.     The apparatus of claim 28, wherein the first and second spaced-apart  
members include a second pair of oppositely-disposed retaining slots which are vertically  
spaced apart from the first pair of oppositely-disposed retaining slots, wherein the opposite  
ends of the latching bar and the safety release paddle are disposed in the second pair of  
oppositely-disposed retaining slots to support the first sideframe in the second pediatric  
patient-restraining fully-raised position.

30           30.     The apparatus of claim 29, wherein the wherein the first and second  
spaced-apart members include a third pair of oppositely-disposed retaining slots intermediate

of the first and second pairs of oppositely-disposed retaining slots, wherein the opposite ends of the latching bar and the safety release paddle are disposed in the third pair of oppositely-disposed retaining slots to support the first sideframe in an intermediate position.

31. A patient support apparatus comprising:

5 a base,  
an intermediate frame coupled to the base,  
a patient support deck coupled to the intermediate frame, the patient support deck having an upwardly-facing patient support surface,  
a headboard movably coupled to the intermediate frame adjacent to a first end  
10 thereof for movement between (i) a first raised position where the top of the headboard is generally disposed above the patient support surface at a first adult patient-restraining height,  
(ii) a second intermediate position where the top of an extension panel movably coupled to the headboard is generally disposed above the patient support surface at a second pediatric patient-restraining height greater than the first adult patient-restraining height, and (iii) a third  
15 out-of-the-way down position where the top of the headboard is generally disposed below the patient support surface,  
a first headboard locking mechanism coupled to the intermediate frame adjacent the first end thereof for selectively locking the headboard in the first raised position and the second intermediate position, and  
20 a second headboard locking mechanism coupled to the headboard for selectively locking the extension panel in a generally vertically extended position where the top of the extension panel is generally disposed above the patient support surface at the second pediatric patient-restraining height.

25 32. The apparatus of claim 31, further comprising first and second generally vertically-extending rods coupled to the headboard adjacent first and second sides thereof, wherein the first and second generally vertically-extending rods are slidably received in first and second rod-receiving openings disposed in first and second corners of the intermediate frame adjacent the first end thereof to movably support the headboard relative to the intermediate frame.

33. The apparatus of claim 32, wherein the headboard has top and bottom outwardly-extending portions adjacent the first and second sides thereof, wherein the generally vertically-extending rods have top and bottom ends coupled to the top and bottom outwardly-extending portions of the headboard respectively.

5 34. The apparatus of claim 33, wherein the undersides of the top outwardly-extending portions of the headboard engage the topsides of the first and second corners of the intermediate frame adjacent the first end thereof to support the headboard in the third out-of-the-way down position.

10 35. The apparatus of claim 31, wherein the first headboard locking mechanism includes first and second pairs of oppositely-disposed, spring-loaded retaining pins coupled to the headboard adjacent to first and second sides thereof, the first pair of spring-loaded retaining pins being configured to engage first and second corners of the intermediate frame adjacent to the first end thereof to support the headboard in the first raised position, the second pair of spring-loaded retaining pins being configured to engage the first  
15 and second corners of the intermediate frame adjacent the first end thereof to support the headboard in the second intermediate position.

20 36. The apparatus of claim 35, wherein the first headboard locking mechanism includes a headboard release handle movably coupled to the headboard and first and second cables coupling the headboard release handle to the first and second pairs of spring-loaded retaining pins, and wherein the first and second pairs of spring-loaded retaining pins are retracted to release the headboard in response to the movement of the headboard release handle.

25 37. The apparatus of claim 36, wherein the first headboard locking mechanism includes a plate member coupled to the headboard release handle, the plate member having first and second portions configured for engaging the first and second cables in response to the movement of the headboard release handle to retract the first and second pairs of spring-loaded retaining pins to free the headboard.

30 38. The apparatus of claim 31, wherein the extension panel is pivotally coupled to the headboard for movement between a first out-of-the-way down position and a second generally vertically extended position, the extension panel being dimensioned such

that the top of the extension panel is disposed above the patient support surface at the second pediatric patient-restraining height when the extension panel is disposed in the second generally vertically extended position while the headboard is disposed in the second intermediate position.

5           39.     The apparatus of claim 38, wherein the second headboard locking mechanism comprises a spring-loaded locking pin coupled to the extension panel, wherein the spring-loaded locking pin is configured to enter a first pin-receiving receptacle in the headboard when the extension panel is in the first out-of-the-way down position to lock the extension panel in the first out-of-the-way down position.

10           40.     The apparatus of claim 39, wherein the second headboard locking mechanism further comprises a spring-loaded button movably coupled to the headboard, the spring-loaded button having a first finger extending into the first pin-receiving receptacle in the headboard, the first finger being configured to push the spring-loaded locking pin out of the first pin-receiving receptacle when the extension panel is in the first out-of-the-way down position to free the extension panel upon actuation of the spring-loaded button.

15           41.     The apparatus of claim 40, wherein the spring-loaded locking pin coupled to the extension panel is configured to enter a second pin-receiving receptacle in the headboard when the extension panel is in the second generally vertically extended position to lock the extension panel in the second generally vertically extended position.

20           42.     The apparatus of claim 41, wherein the spring-loaded button includes a second finger extending into the second pin-receiving receptacle in the headboard, the second finger being configured to push the spring-loaded locking pin out of the second pin-receiving receptacle when the extension panel is in the second generally vertically extended position to free the extension panel upon actuation of the spring-loaded button.

25           43.     The apparatus of claim 42, wherein the spring-loaded locking pin coupled to the extension panel is configured to enter a third pin-receiving receptacle in the headboard when the extension panel is in a third generally horizontal shelf position extending over the patient support surface to lock the extension panel in the third generally horizontal shelf position.

44. The apparatus of claim 43, wherein the spring-loaded button has a third finger extending into the third pin-receiving receptacle in the headboard, the third finger portion being configured to push the spring-loaded locking pin out of the third pin-receiving receptacle when the extension panel is in the third generally horizontal shelf position to free the extension panel upon actuation of the spring-loaded button.

45. A patient support apparatus comprising:  
a base,  
an intermediate frame coupled to the base,  
a patient support deck coupled to the intermediate frame, and having an upwardly-facing patient support surface,  
at least one collapsible sideframe movably coupled to the intermediate frame adjacent to a first side thereof, the collapsible sideframe comprising a plurality of upright assemblies having top and bottom ends pivotally coupled to top and bottom rails respectively, each upright assembly having an upright portion and an upright extension portion, the upright assemblies being staggered in two rows which are offset with respect to each other in a direction generally perpendicular to the longitudinal axis of the patient support deck so that the collapsible sideframe can be raised and lowered without interference between the adjoining upright assemblies, the pivotally-coupled upright assemblies being configured for movement between (i) a first raised position, where the top rail is generally disposed above the patient support surface at a first adult patient-restraining height, (ii) a second fully-raised position, where the top rail is generally disposed above the patient support surface at a second pediatric patient-restraining height greater than the first adult patient-restraining height, and (iii) a third out-of-the-way down position where the top rail is generally disposed below the patient support surface, and  
a sideframe locking mechanism coupled to the intermediate frame for selectively locking the sideframe in the first raised position and the second fully-raised position.

46. The apparatus of claim 45, wherein an end section of the patient support deck is pivotally coupled to the patient support deck about a transverse axis disposed perpendicular to the longitudinal axis of the patient support deck for movement between a

first generally horizontal position and a second generally vertical position, the apparatus including an end section locking mechanism for locking the end section in the second generally vertical position to shorten the length of the patient support deck.

47. The apparatus of claim 45, wherein a foot section of the patient support deck is pivotally coupled to the patient support deck about a transversely-extending pivot pin for movement between a first generally horizontal position and a second generally vertical position, the apparatus including a foot section locking mechanism for locking the foot section in the second generally vertical position to shorten the length of the patient support deck.

48. The apparatus of claim 47, wherein the foot section locking mechanism includes a pivot pin-receiving cutout which extends generally parallel to the length dimension of the foot section, and a generally vertically-extending, foot section-receiving compartment in the intermediate frame, the foot section being pivoted upwardly, and slid downwardly into the generally vertically-extending, foot section-receiving compartment to lock the foot section in place.

49. The apparatus of claim 48, comprising an endframe coupled to the intermediate frame adjacent to one end thereof such that the top of the endframe is generally disposed above the patient support surface at an adult patient-restraining height, the apparatus further comprising an extension panel movably coupled to the endframe between (i) a first out-of-the-way storage position, and (ii) a second generally vertically extended position, where the top of the extension panel is disposed above the patient support surface at a pediatric patient-restraining height.

50. The apparatus of claim 49, wherein the endframe is a headboard.

51. The apparatus of claim 49, wherein the endframe is a footboard.

52. In a patient support apparatus including a base, an intermediate frame coupled to the base, a patient support deck having an upwardly-facing patient support surface coupled to the intermediate frame, at least one sideframe movably coupled to the intermediate frame adjacent to a side thereof for movement between a raised position where the top of the at least one sideframe is generally disposed above the patient support surface and an out-of-the-way down position where the top of the at least one sideframe is generally disposed

below the patient support surface, a sideframe locking mechanism coupled to the intermediate frame for selectively locking the first sideframe in the raised position, wherein the at least one sideframe comprises spaced-apart top and bottom rails and a plurality of upright posts coupling the top and bottom rails, and wherein the top and bottom rails and the upright posts are all padded with an inner layer of spongy material and an outer layer of tough material.

53. In a patient support apparatus including a base, an intermediate frame coupled to the base, a patient support deck having an upwardly-facing patient support surface coupled to the intermediate frame, at least one sideframe movably coupled to the intermediate frame adjacent to a side thereof for movement between (i) a first raised position where the top of the first sideframe is generally disposed above the patient support surface at a first adult patient-restraining height, (ii) a second fully-raised position where the top of the first sideframe is generally disposed above the patient support surface at a second pediatric patient-restraining height greater than the first adult patient-restraining height, and (iii) a third out-of-the-way down position where the top of the first sideframe is generally disposed below the patient support surface, a first sideframe locking mechanism coupled to the intermediate frame for selectively locking the first sideframe in the first raised position, and a second sideframe locking mechanism coupled to the first sideframe for selectively locking the first sideframe in the second fully-raised position, wherein the at least one sideframe comprises spaced-apart top and bottom rails and a plurality of telescopic posts coupling the top and bottom rails, wherein each telescopic post comprises an upright member secured to the top rail slidably received in an upright inner sleeve secured to the bottom rail, wherein a plurality of soft upright outer sleeves depend downwardly from the top rail and extend around the upright members to form annular spaces therebetween, wherein the upright inner sleeves slide over the upright members and upright outer sleeves slide over the upright inner sleeves, and wherein the top and bottom rails and the upright inner sleeves are all padded with an inner layer of spongy material and an outer layer of tough material.

54. The sideframe of claim 53, wherein the spacing between the telescopic posts is sufficiently close to prevent an infant from falling through.

55. The sideframe of claim 54, wherein the spacing between the telescopic posts is about two and three eighth inches (about 6 centimeters).